more decided difference from the continuous open groove at the floor of the orbit in the adult female *Tr. niger* than that groove presents in comparison with the shorter and shallower one in *Trogl. Gorilla*. I find too that the second character of *Trogl. Gorilla* pointed out by Prof. Agassiz,—"from the internal walls of the orbits which recede from each other in descending towards the floor, thus leaving a large pyramidal space for the lodgment of the os ethmoïdes,"—is so much less marked in the female skull of *Tr. Gorilla*, as contrasted with that of *Tr. niger*, as to induce me to view it more in the light of a sexual than a specific modification.

The seventh is a good character, and is repeated by each of the skulls of *Tr. Gorilla* examined by me. All the skulls of *Tr. niger* also show the backward projecting point, where the emargination exists in *Tr. Gorilla*.

8. The minor relative projection of the incisive alveoli beyond the line of the rest of the face is as characteristic of the three skulls of *Tr. Gorilla* now in England as of the four in the United States, and results from the same comparative shortness of the premaxillary bones, between the nasal orifice and the edge of the incisive alveoli. But the ossa nasi, besides being more narrow and compressed superiorly, are more prominent at that part in *Tr. Gorilla* than in *Tr. niger*, and they are also more expanded and broader inferiorly, and I cannot but regard the most decisive mark of the specific distinction of the *Troglodytes Gorilla* to be the longer persistence of the maxillo-premaxillary sutures, and the evidence thereby given of the peculiar form, development and connexions of the upper portions of the premaxillary bones. It is remarkable indeed, since these sutures remain so distinct in the adult female skull (fig. 2) and the younger adult male skull (fig. 1) here described, that no trace of them should have been detected in any of the four skulls taken by Dr. Savage to America, in which Dr. Wyman describes the *ossa nasi* as being "firmly co-ossified with each other and with the surrounding bones."

The triangular expanded facial part of the upper end of each premaxillary intervening between the nasal and maxillary bones will always serve to distinguish the cranium of an immature *Trogl. Gorilla* from that of a *Troyl. niger*.

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## MISCELLANEOUS.

*Note on the Development and Organization of Infusoria:—Gyratory Movements of the Vitellus: Pulsations of the Contractile Vesicle in the Egg.* By M. F. Pouchet*.

I have followed out the development of several animalcules: some emerge from the ovum with the form they are destined to present during the whole course of their existence (*Kerona, Vorticella*); others undergo, in the course of development, very apparent metamorphoses

* Communicated by J. T. Arlidge, A.B., M.B.

(*Kolpoda, Dileptus*). Owing to the latter circumstance, it has often happened that the young and the adult forms of the same animalcule have been described as distinct species. It is certain, for instance, that the *Glaucoma scintillans* (Ehr.) is but the fœtal or imperfect condition of the *Kolpoda cucullus* (Müller).

In the ova of *Vorticellæ*, having a diameter of ·04 of a millimetre, the vitellus clearly manifests gyratory movements, in all respects resembling those in the ova of mollusca and other animals. When the young *Vorticella* is fully developed and on the point of leaving the egg, this gyration is succeeded by movements of another description, viz. by contractions of the entire animalcule, which, as is observed, for example, in the young *Lymneæ*, seems to struggle under the transparent envelope of the egg.

In the ova of *Vorticellæ*, the animalcules of which are on the eve of exclusion, I have, in several instances, recognized the existence of the contractile vesicle, and have noted its movements. This vesicle was proportionately of less size than in the adult animal, and its pulsations were less frequent. These ova, at this period entirely occupied by the embryo animalcule, presented a diameter of ·04 millimetre, and the contractile vesicle which was situated at about the centre, when of its greatest dimensions, ·005 of a millimetre.

In the *Vorticellæ* there exists a sac, sometimes very evident, on the side opposite the cardiac or contractile vesicle, and extending nearly the whole length of the animal. The interior of this sac presents very distinct molecular movements, which seem clearly owing to the existence of vibratile cilia. At intervals this sac contracts from before backwards, and seems to transport in that direction a mass, distinct from the stomach vesicles which it compresses. This sac is the respiratory organ; and its movements have induced some observers to hazard the opinion of the formation of vacuoli in the substance of the animal, or to admit the existence of a form of circulation of granules, such as is noticed in vegetable cells.

From what proceeds, we must regard the contractile vesicle as a cardiac apparatus*. It is seen to manifest itself like the *punctum saliens* of oviparous embryos. And hence we cannot with Ehrenberg consider it as belonging to the genital, or, with Spallanzani, to the respiratory apparatus.—*Comptes Rendus*, Jan. 15th, 1849.

[If these researches of M. Pouchet be confirmed, an important step in advance has been made in our knowledge of the Infusoria. We can no longer doubt, with M. Dujardin, the existence of ova, and of oviparous reproduction in the true Infusoria or Polygastrica. But until this confirmation be given, such exceedingly delicate observations as those detailed must be received with some reserve; seeing that imagination, and the desire to indicate an analogy with the higher animals, are too apt to interfere with precise investigation in such minute beings.

Again, respecting the contractile vesicle said to be observable in

* Wiegmann (Archives, 1831) surmised the cardiac nature of this contractile vesicle; and Siebold entertains the same idea.—J. T. A.

the embryo *Vorticella*, it is stated that its pulsations were less rapid than in the full-formed animalcule ; a circumstance at variance with analogy ; for, in the embryos of higher animals, the contractions of the cardiac vesicle, or punctum saliens, are more frequent than those of the circulating sac in the adult. Moreover, if such a perfect system of organs, presenting a cardiac and a respiratory sac, be observable in the *Vorticella*, it must surely elevate that genus considerably in the scale of animals, and place it far above the majority of the polygastric Infusoria. And, consequently, if such a complex organism can be shown in the *Vorticellæ*, we are not to attribute a like one to those other Infusoria with which that family is at present associated ; for the Monads, the Amœbæ, &c., are surely but one remove from homogeneous organic matter.—J. T. A.]

British Museum, Zoological Department.—Conchology.

It is suggested that the fields of the tablets on which shells are fastened should be stained with different colours corresponding to the following grand geographical divisions, which may be termed "generic :" 1. Europe ; 2. Asia and its islands ; 3. Africa ; 4. Australia ; 5. Polynesia ; 6. North America ; 7. South America.

Smaller specific geographical divisions might be indicated by a narrow border of a different colour to each tablet. When the locality may be unknown, the tablet may remain white until further information can be acquired. Such a plan would interfere in no wise with the arrangement of species according to their affinities, while it would facilitate the researches of the student, who could, at a glance, ascertain the country of a particular species, or direct his attention, in rapid succession, to all the denizens of the particular tract regarding which he is desirous of gaining information, merely by reference to an index-card showing the colours of the divisions and subdivisions. The specific subdivisions may be increased to any extent desirable by the use of double or treble borders of diverse colours.

The above is offered as an improvement on the system in use in some private entomological cabinets of distinguishing indigenous British species by a ticket of a conspicuous colour.—W. H. B.

February 24, 1849.

English Wild Beasts a Century and a half ago.

"At Enfield, hardly out of the sight of smoke of the capital, was a region of five and twenty miles in circumference which contained only three houses and scarcely any inclosed fields. Deer as free as in an American forest wandered there by thousands. It is to be remarked, that wild animals of large size were then far more numerous than at present. The last wild boars, indeed, which had been preserved for the royal diversion, and had been allowed to ravage the cultivated land with their tusks, had been slaughtered by the exasperated rustics during the license of the civil war. The last wolf that has roamed our island had been slain in Scotland a short time before the close of the reign of Charles the Second. But many